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## **Rift: a Mobile Application for UMaine**

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RIFT: A MOBILE APPLICATION FOR UMAINE

by

Michael Ciance

A Thesis Submitted in Partial Fulfillment  
of the Requirements for a Degree with Honors  
(New Media)

The Honors College

University of Maine

May 2021

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## ABSTRACT

COVID-19 affected schools and universities nationwide in 2020 and is still an ongoing threat to public safety. With many institutions converting to remote learning and distanced campuses, students and faculty face many challenges. The social climate and issues facing students and faculty is leading to stress, low morale, and overall poor moods. Universities are trying to accommodate as best as possible but what they do is not always enough. A sense of community surrounding schools can be damaged by the processes of social distancing and working from home. Students need a way to communicate what they believe to be important for universities to address, as well as a way to come together to address the issues themselves.

Rift is a project aimed towards bridging the gap between college issues and their solutions. While only currently offered on iOS devices, Rift can be downloaded and used by any person with a University of Maine email address. The app is broken into three sections: a community thoughts tab, an events page, and a live map. In each section, users can view and explore their peers' posts, events, and track where such things are happening. By creating a digital and mobile social space for students and faculty alike to voice their concerns and create events to fix such issues, it enables the act of positive change.

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## DISCUSSION

In experiencing the 2020-21 semesters, I and many others have felt powerless against everything going on around us. The harsh political climate, COVID-19, piling student debt, and an economy that is unwelcoming to recent college students are some of the many examples of the pressures that have been added to the student experience, on top of the rigor of academic pursuits. Currently, even at UMaine, students have little say in the matter even if their voices can be heard. I propose that a proper solution to help other students in this time of need is not to personally help them, but to give them a platform in order to enable them to help themselves and each other. These problems led me to create Rift, a social application platform that allows students to openly and constructively express their opinions about UMaine, create events around campus to help resolve such issues, and give students and faculty alike a live-updating map of where the problems and events are occurring.

Rift is an attempt to raise awareness towards students' college struggles, as well being the outlet for community engagement around such issues. I decided on a mobile application, as it more easily allows for users to use the app on the go and meet up for events created. Plus, phones are more readily on someone's person rather than a computer. Many community-based applications are developed for mobile devices, as people are more apt to pull out their phone and connect. This also benefits the location services feature in the app as a computer is stationary and cannot be used on the go.

### Inspiration

I have always considered myself to be an empathetic person who enjoys helping people. However, in the extremely harsh times the majority of college students are going

through right now, it is impossible to personally help everyone. This is what led me to come up for the idea of Rift. There are many other people out there like me who enjoy helping others and fixing problems--they just need a better way to go about doing so. Also, in a current age of remote learning and social distancing, the best method to go about this task is to create a virtual platform where students can connect online.

Over the summer of 2020 on vacation, I was imaging to myself what this thesis could be. A mobile app enticed me as it would challenge my coding, design skills, and push me farther than I thought I could go. My family sat outside on the deck and started to rattle off what we were struggling with, what was wrong with the world, and what could make them better. It hit me right then what my project would be. My goal became to create a platform for students like myself to vent, discuss, and bring light to the issues they face. This initial idea excited me as not only would I be able to help other students like me, but it also was something I personally needed at the time. The year 2020 has been incredibly hard on students and they deserve to not only bring awareness to their issues but give them the power to make the change.

## PURPOSE

During the COVID-19 pandemic, The University of Maine has sought out student feedback through email surveys. Many of these are on different topics such as mental health and classes. It is their goal to ensure things are running smoothly and students are doing as best they can during these stressful times. I commend the University of Maine for putting in as much effort as possible towards helping their students. However, many of these surveys are basic and only search for responses for specific topics. Also, in many cases there are only multiple-choice responses where the user is required to choose pre-determined answers. These surveys do lead to useful information towards the subject matter. However, they are not speaking to what is at the forefront of student's minds.

Created in direct response to COVID-19, the goal of Rift is to give students an open platform for giving constructive feedback, expressing their issues, and coming together to create solutions. It is intended to hit multiple facets of the community of UMaine such as addressing student priorities, openly discussing such issues in efforts to create solutions, and coming together to solve issues through social events. All of the mentioned purposes are in efforts to not only help UMaine through constructive feedback but raise student empowerment through helping to bring change to issues identified by students themselves.

However, what happens after COVID? Rift will still be able to serve its purpose even without the harsher environment and the social distancing occurring. In fact, it is likely that Rift could become even more successful as the ability to create, host, and attend events increases as health restrictions loosen. Although the COVID related issues discussed through posts will eventually die down, it will still retain its potential to enable



an act of change through peer feedback and events, as well as future community-related issues as they arise.

Outside of the practical intent behind the project, there is also a personal side. My own personal goal was to create a polished mobile application, heighten my design and coding skills, and gain some valuable experience that is applicable to a career.

## LITERATURE REVIEW

The following references of scholarly articles make up the required knowledge needed to back the purpose and creation of this project. However, there are many more sources of information such as React Native documentation websites, forums and threads about code, and other miscellaneous debugging tools. These will not be listed in the bibliography as they only apply to small and specific aspects of this project.

### Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff

This article by Pradeep Sahu discusses the challenges the COVID-19 pandemic has created for Universities, faculty, and students. Students' mental health and how universities try to accommodate for them is a point mentioned. There is an increase in students' stress and anxiety towards school, their families, and uncertainty of the future. In the section about mental health, the authors bring up a question: “Are universities taking proactive measures to support the mental health and well-being of students?” (Sahu). In my work, I applied this question to the University of Maine: they have taken measures to help students and their mental health, but are they working? This question shaped the initial goal of allowing students to voice their concerns about the university and COVID.

## Benefits of a Negative Post: Effects of Computer-Mediated Venting on Relationship Maintenance

As knowing the student feedback would be useful for university administrators, I wanted to find out what the short-term benefits might be for the students. If the university were to make changes based on the student's posts, they would not be instant. This study done by Jessica E. Wendorf and Fan Yang examines the Catharsis Theory in relation to expressing negative feelings in Facebook posts. Catharsis Theory states that negative emotions want to be released, if they are bottled up they can become mentally harmful. The results show the higher levels of stress an individual felt, the more likely they were to express the negative feelings. It also suggests that more venting in these posts made individuals pay more attention to friendship maintenance.

In relation to the Rift app, this maintenance of friendship behaviors can be interpreted in two ways: first, via the relationship with the student's peers, and secondly via the relationship between the student and the university as a whole. Both have connections personally and professionally, and by venting the negative feelings about what needs to be improved from the university, it will not only give the feedback to the community, but also relieve the students of their stress helping relieve the potential bottled up emotions. Also, this leads to an effective application beyond Catharsis Theory, as Rift enables students to come together and to be the change they want to see on campus, enabling an environment for student empowerment.

### Health Promotion Glossary

This glossary by WHO acts as a guide for promoting better health on an individual and community scale. Discussing empowerment, community empowerment can lead to improved personal and communal health especially during difficult times such as COVID. A part of empowerment can be referred to the actions of expressing concerns, creating strategies, and action to meet such needs. Empowerment goes hand in hand with enabling; the ability for the community to come together and mobilize towards the common act. In a time where mental and physical health is so important, I have found this glossary to be a critical tool for finding definitions and supplemental information on the foundational pieces of what my project is aiming to achieve. Those pieces are: empowerment on a communal and personal level, enabling, community actions, and community behaviors. Although all the mentioned terms are in direct relation to health, they can easily be translated to other community goals outside of health issues such as COVID-19.

### Mobile UI Design Patterns

In this particular guide it covers user input, navigation, data, and user experiences all revolving around a successful design. Before any substantial coding of the app began a UI prototype, interactive graphics of how the app is going to look, was created. Having some previous knowledge of effective design strategies, I knew where to begin, but not how to create a complete product. I came across Chris Bank, the growth manager at UXPin who has written many pieces on successful design principles regarding mobile apps. This guide helped me tremendously in understanding not only the overarching

concepts, but also the small details that enhance an app greatly. Acting as a reference through the creative process, I found myself referring back for guidance for further implementation and improvements such as expandable components, use of modals, and even the use of a map as a full background. Not only did the mentioned examples help to provide ideas for making the app more fleshed out, but also how to avoid the common pitfalls associated with poor implementation.

### React Native Notes for Professionals

*React Native Notes for Professionals* is a compiled book of documentation created by fifty-three authors from Stack Overflow. It covers syntax, concepts, design technicals, and efficient ways to code using React Native. Unlike the React Native website documentation, this text covers the best practices for using certain components. Starting off through efficient navigation, I referenced this text many times for the specific syntax, as well as understanding concepts of more difficult practices such as working with data and components. In the early stages of this project, I had very little React Native experience. React Native is a coding language aimed towards mobile development, which is a standard in the app coding industry. I could barely get by the very basics, so I had a tall order ahead of me and lots of learning to be done including many foundational concepts such as navigating, using data, and creating functions used across all facets of the app.

## Exploring Associations Between Employee Empowerment and Interpersonal Trust in Managers

Although not specific to students and administrators, this study can be related to my project as the relationship between employer and employee relates greatly to universities. There is a gap in studies, research, and scholarly articles specifically with administrators and students in relation to student-empowerment. However, similar studies on relationship dynamics such as this can be interpreted towards the ideology behind the project. The study conducted explores the association between employee empowerment and interpersonal trust in managers. Interpersonal level trust is defined as “trust between individuals and groups within an organization and the well-being of its employees.” (Moye and Henkin, 102). The results of the surveys sent to employees found there were higher levels of interpersonal trust with employees who felt they had more influence in their respective departments. It was also concluded that perceived higher levels of empowerment lead to higher interpersonal trust (Moye and Henkin, 108). This can be extended to the student-administrator relationship, as students who feel that they have a voice in and influence on university policies will have higher levels of trust in administrative decisions. Also, students who feel that there is a community environment built specifically with their own empowerment in mind will also lead to students having a greater trust with their university.

## Editorial: We All Saw This Coming

To preface this entry, I would assert that the University of Maine has done a fantastic job dealing with COVID-19 and how it affects their students, campus, and

classes. This news article discusses University of North Carolina's rush back to campus in August of 2020, detailing how the majority of students and faculty saw the early return as destined to fail, specifically because of the institutional lack of communication and its reliance on unilateral decision making. As a result, the institution put people both in and around UNC in danger, as students were brought back too soon, and without a safe plan in place. Although in part it was the student's fault for partying and being reckless, it was expected from young students new to living on their own and possibly making poor decisions. In turn, it still falls onto the university.

It is clear that universities will make the decisions that they feel is best. However, the community may disagree and have valuable input. Would UNC administrators have listened to their students and faculty who advised against returning to campus so soon? It is impossible to say, but by giving them a platform to openly discuss how they feel could have led to a much safer outcome.

## METHODOLOGY

The methodology involved in creating this project will be sorted by sections. While generally done in chronological order, through an agile development method each section has been revised and edited on multiple pass throughs, making the sections more cyclical.

### Design

Wireframing - Before any coding, mockups, prototypes, or graphics were created a wireframe, a low fidelity structural graphic of how the app will look, was made using Adobe XD (Figure 1). Using black, white, and limited color, the flow of the app was laid out using boxes of different shades. Starting with the login and signup page, items on screen were distinguished from each other. Shades of grey used for cards (repeatable components of content), with certain shades representing different aspects. Backgrounds, user input, text, buttons, and headers were all distinguished using this method. A low fidelity prototype was formed using the basic pages through onclick navigation. Although very rough and undetailed, the wireframe gives the user interface a basic layout, allowing for further development using greater detail.

Graphics - From the wireframe, a new blank set of screen pages was created. Basic colors and blocks were placed in the correct positions but without further detail. Using Adobe Illustrator, logo development began. Originally, the application was named “UMO.Vent”. The screen layout for the app was then branded for the University of Maine using the specified color values associated with it. Through multiple iterations and peer feedback, a logo was created and imported into the prototype and used as the



face (Figure 2). Through the brand the logo created, more icons were designed, sticking to the University of Maine color theme and brand in order to fit into place.

After developing the design and brand following UMaine design guidelines, I quickly discovered the problems associated with having to adhere to a pre-existing institutional brand. Although I could have my app represented by UMaine, the guidelines were very restrictive. I felt as a designer that I would not be able to express myself through the design while being required to stick to certain colors, fonts, names, and qualifications. The brand and graphics associated shifted to the finalized design of “Rift” (Figure 3).

The name Rift holds multiple meanings that represent my intentions for the app well. A standard definition of the word rift is a break or crack. In many cases, the users of Rift are identifying the “cracks” UMaine has in an attempt to bring awareness and patch them. However, a rift can also be known as a portal or doorway, such as a rift in space/time. The app is designed to open a door towards a brighter future for UMaine by allowing the students in the struggle filled times of COVID to empower themselves and heal the cracks UMaine has.

Being simple and showing light of my own personal design style, the logo is a minimalist portal. It is present in the title page of the app and as the icon (Figure 4). To accompany the simple logo, a more fleshed out graphic was created on the entry page of the portal on a hilltop, showing a doorway on the horizon. In switching to Rift, I shifted many of the other graphics with it to better represent the new brand. Custom UMaine styled icons were replaced by more standard icons from React Native Vector Icons to allow for a standard theme (Figure 5).

Prototyping - A high fidelity prototype was created next to the wireframe as it was used as reference for placement (Figure 2). Originally, following UMaine branding the color palette matched the classic University of Maine colors. A dark navy blue, a light pastel blue, and white was the entirety of the palette as the guidelines stated no other colors are allowed to be associated with UMaine branded products. White and slight off-white shades of grey were used as background colors for pages and cards for posts. The dark blue was the main characterized color being evident in every page by being the highlights, and the light blue was associated with buttons. Early phases of the app only consisted of few pages as the prototype is far smaller than the current build of the app. However, the main cards and pages were easily moldable towards new pages following the same layout and style, just with different content filling them (Figure 6).

Prototyping involved creating fake buttons using the Adobe XD assets and linking them to the correct pages. This allows for an exported version of the prototype to be interactive, allowing the user to flow through the app without it being coded. Peer feedback suggested the originally prototype design flowed well, stylistically looked pleasant, and served its purpose.

However, after shifting to the Rift brand, the original prototype lost much of its guiding ability for coding how the pages and components will look. This required further attention by reworking the main home page using the new style. Shifting the colors for the new palette style allowed for easy adjustability as the form of elements stayed virtually the same. This also allowed for only one of the prototype pages to be reworked as the functionality stayed the same.

As mentioned in the earlier note, each design was created in waves of editions. In many cases, certain elements were not formed all at once, but under many weeks of small stages of development. This allowed for greater user testing, feedback, and reworking of old assets to better fit the current builds at the time of development.

### Code

The entirety of the coding process was done using React Native Expo Client and Visual Studios running through the terminal. Using this method of coding allows for simple user testing through the development process. Different builds can be tested using the Expo Go app on mobile devices.

Navigation - The foundation of an application is its page infrastructure and navigation between them. This was the first piece coded on the main App.js file which holds the structure of the app. Each main page was built using a stack navigator and is made up of each screen associated with it (Figure 9). For example, the profile page is a main stack, and the individual post pages the user can link to are the screens associated inside the stack. Each screen header, options, and design is customized inside the component. Standard throughout the app, the screens are made up of top headers with titles, as well a back navigation. However, when the user signs up or logs into the app, back navigation is disabled as the user should not be able to return without logging out. Through the passing of props through the stack navigation, header titles are able to be customized as seen in the map component. Viewing each post through the map brings the user to a screen where the header title is the location interacted with.

The standard navigation bar at the bottom is a tab navigator, a built in component with React Navigation, allowing for the creation of tabs using the existing screen stacks. Each icon used in the nav bar, as well as throughout the other sections of the app is from the MaterialCommunityIcons pack in the React Native Vector Icons library. A section of if statements and the isFocused prop determine whether the user is inside of each tab. If so, the icon highlights white to let the user know it is selected.

Server and Data - Given user information, posts, and events are all uploaded and logged in Firebase. The Firebase infrastructure separates account information such as email and passwords together, and other custom data in the Realtime Database. An API key for the created project is imported into App.js for communication with Firebase. In any page where custom data is being uploaded or retrieved, a function is implemented to access the database (Figure 10). The database was organized into three folders of data: users, posts, and events. Upon creating an account, the given name and email is uploaded into the users folder. The posts and events folders are very similar to each other as they are composed of the user inputted text when creating a post, as well as the time uploaded, and empty folders for likes, comments, and flags. Although empty to begin, after other users interact with the posts the user's email is pushed into the folders to track who has interacted with it.

In many cases, two functions must be present in a given screen that accesses the database. There must be one for pulling the current signed in user's data, as well as retrieving the data for the posts or events being displayed. When in the profile page these two functions work in tandem as the current user data is required in order to pull the correct posts from the database.

User Entry - Upon the initial load of the app, the user is greeted with an entry page showing the logo and buttons for logging in or signing up. Inside the pages there are text input fields for users to login or signup using a @maine.edu email address and a password. When creating an account, the user is required to put their full name as it appears on the posts. If the correct information is inputted the user is signed into their account in Firebase and navigated to the Community Thoughts home page and greeted with a welcome message. If the information inputted is incorrect, a message is displayed telling the user it failed. After signing in, the user can sign out of the account using the logout button in the top right of the profile page. After clicking, two alerts are displayed to verify if the user wants to logout.

Creating a post - Users can create two kinds of posts, a regular text post or a scheduled event. Both input forms can be found in the same create screen and can be chosen by clicking the type of post button above the title input to open a modal (Figure 7).

A text post consists of a title, body, category, and an optional location. While the first two are self-explanatory, the category and location differ. The category system present throughout the app is added to better filter content to specific facets of the university. The five categories are: campus, dining, residence, classes, and COVID. Each category is represented with its own icon and color to match its association. The user must select at least one category when creating a post. The optional location is in place to allow for text posts to be placed onto the map for a live update of what is happening around the campus. This feature is optional as not all topics being posted

about have a location associated. Further information about the locations will be expanded upon in the Google Maps section.

Events differ as they are more complex. They share similarities with text posts in that they have titles and bodies, but they also have required locations, dates, and times. The date and time components open specific custom modals from react-native-paper-dates. Inside the modals, the user can choose a date from a calendar picker, and choose a time using the custom clock, or by typing in the time.

If any of the required input fields are left blank when the user submits the post, an error alert will appear letting the user know it failed to post.

Cards - The custom card components are present throughout almost every screen. Each post's information is set inside of the card. Using a .map function on the array of data from Firebase, all of the information can easily be pushed into the card component to then be populated. This concept is present through the post cards, event cards, and their detailed page versions.

Although they look deceptively simple, these cards hold a majority of the processing data functionality. Not only are they receiving the information from the props, but they are also taking the signed in user's information in order to render certain components. This is present in the liking, flagging, and deleting post buttons. Each button holds multiple functionalities that needs to be individually tailored towards the signed in user. The functions for these buttons also communicate with the server by pushing or removing data from the post. For example, the liking system in play is an array of user's emails. If the current signed in user's email is inside of the array, they have liked the post and the filled in heart icon appears. If the filled in heart is pressed,

the component opens communication with the server and removes the users email from the array, unliking the post and rendering the outlined heart icon. This creates a cycle of liking and unliking by adding and removing the user's information. As mentioned, this system is repeated for the liking, flagging, reporting, and a more complex version for commenting (Figure 11).

The flag icon is included for inappropriate posts that should not be uploaded. After a number of flags have been submitted for the post, it will get deleted. This is to promote a community driven moderation system instead of having a moderator account filtering through the posts.

Comments - Each comment is stored inside a "comments" folder inside of each post's data. Alongside the comment itself, the user's name is stored. Comments are only able to be made after clicking on an individual post to view the detailed version. Using a text input and its own submit icon, users can post their comments and see them appear underneath the original post in real time. Similarly to the other posts, there is a liking system in play on each individual comment.

Google Maps - An ability to search through Google Maps location data is applied using react-native-maps and importing a custom Google Maps API key similarly to how Firebase works. Alongside the actual map, a search bar component is created using react-native-google-places-autocomplete. This component is a built-in search bar that can be customized. The customization set is to its design, and settings which set the region to just the United States.

On the live map, the initial region will always be centered on the UMaine campus as that is where the majority of the posts will be located (Figure 8). However, the user

can use the search bar to change locations or drag around the map. On the map, red markers will be placed where text post's locations are set, and yellow markers will be placed where events are being held. Using an onPress and a callout component, once the marker is pressed the user will be taken to a separate page showing all of the posts or events at that location (Figure 12). The live map displays any future event, and only displays text posts that have been created within the last thirty days. Without a timeframe for post expiration, the map can easily be flooded with too many markers.

### Testing

Demo Builds - Coding alongside the Expo Client allows for easy and live testing. There is technically no need for “builds” to be exported out, all user testing can be done using the live code. However, for organizational purposes multiple backups were created before each milestone for testing. This is to allow for easy access into stable builds in case a feature broke the project. Also, this helped to section coding into chunks of workable features, allowing for the testing subjects to try out limited amounts of features instead of flooding them with everything.

Near the end of the project's development there was a need for exporting a 1.0.0 build to allow for it to be sent to Apple for review. Using the Expo CLI, the project was able to be ejected from the files on my machine and turned into an .ipa file. Using the applications XCode and Transporter, the file was uploaded to the projects Apple Developer account and reviewed by an Apple Team member, making sure it follows the rules and guidelines. After being approved for beta testing, the application was stored in



Testflight and a testing link was sent out to classmates, friends, and family members to be downloaded and tested on their own devices.

Feedback - The main source of feedback testing was through Slack polls.

Feedback ranged from questionnaires in regard to design choices, functionality, future concepts, and step by step testing. For example, 75% of testers found the white logo was more effective than a light blue shaded one. Getting other opinions was critical in the design process as it reinforced the positives validity and made it possible to find the weaknesses for tuning. The polls and open comments were also critical to gain an outside perspective. Others having no idea about the content of the project and being able to see their movements throughout the app is only for its improvement.

## CRITICAL ANALYSIS

This thesis bridges multiple facets of health, peer to peer interaction, and community empowerment through a social platform tailored towards the university's benefit. With all of these aspects combined, there are no other applications that accomplish as much for the university and students alike. Other applications such as Vent, Reddit, or Facebook could in theory operate similarly as being a communal posting location. However, in order for this to be accomplished, a community must be created on the platform, have people find and join, and be directed towards posting in such ways. Also, they would be missing a very large part of Rift in the live updating map of where events and issues are occurring. Rift is not only able to accomplish creating an aggregation of direct student and faculty feedback for UMaine, but also show a live map of issues showing staff exactly where and when the issues are occurring. The University of Maine has many Facebook communities for clubs, fraternities and sororities, and other organizations on campus. However, unless followed, those places are the only advertisements for events. By creating events on Rift, all of the mentioned organizations are able to post about their events being held on campus, giving more awareness towards them. It also allows them to gauge community interaction by being able to view how many people have joined said event. In an age where there is an app for everything, Rift has accomplished finding and filling a void for students and the university and combining all of the essential means.

While Rift is successful in the aspects mentioned above, it is not without shortcomings. With future development, the app could benefit from possible push notifications through the application, or through connected emails with posts that have

enough interaction. This could be especially useful in notifying university administrators about a post enough students like or comment on. Another feature that will likely be implemented in the future would be a group messaging system inside an event. The creator of the event would be able to send an in-app text message to all of the participants of the event, giving them more information, details, or just to have general conversations with people interested. Yet, with a large event with many people, this could get chaotic, leading me to believe that a settings tab would be necessary for the creator to have control of.

This project succeeds in giving students an open and constructive social space to speak their mind about university. It not only is successful in giving an open place to vent and let out the frustrations, concerns, or even positives they feel, but also by bridging the venting with enabling change for such feelings. It is able to bridge Catharsis Theory by providing a space for students to let emotions out, while also empowering them to work with each other to build a community during this incredibly difficult time, as COVID continues to affect the world.

Even after COVID is over and the world is returned to normal I believe Rift can still hold its purpose. Although it will likely lose the heightened amount of feedback necessary for the large amounts of changes and accommodations UMaine has made in response to COVID, there will always be room for feedback. Also, as briefly mentioned earlier the removal of health and safety precautions, the largest one being social distancing, will allow for the events portion of the app to thrive. Many organizations and clubs that would normally run charitable and beneficial communal events are put on hold currently. Even if they are to still run, they are reduced in scale to follow the health

guidelines. Opening the UMaine campus to regular operations will only lead to an increase in gathering opportunities that are unable to occur in the current climate.

## SUMMARY

Throughout the creation of this thesis, I have experienced a tremendous amount of growth both personally and professionally. I have never created any project as large scale as this, and it has given me a taste of what career projects will entail. Working in an agile development process, getting feedback and adjusting features of the app, as well as testing my peers' projects is all something I have never done before, but will continue to do in a future career.

As briefly mentioned earlier, my coding and app development knowledge and experience was low at the beginning of this process. Through coding, designing, and implementing an entire app single handedly has put me in a position where I am confident with my skills and knowledge of the field. In addition to the growth in knowledge and skill that I have experienced in this project, I have also significantly increased my confidence and my ability to believe in myself. I had doubts throughout the process of whether or not I will be able to make a finished and polished product, but I have experienced it and now I know that I can.

Regardless of whether I will continue to expand this project further and increase development, I would like to take the knowledge that I have gained and continue to develop mobile applications in React Native. I have found a great deal of enjoyment through coding, designing, and creating applications from which others may use and gain. In conclusion, I have found a passion in part of my field and plan on continuing with this kind of work for many years to come.

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## APPENDICES

## APPENDIX A: GRAPHICS



FIGURE 1: Wireframe



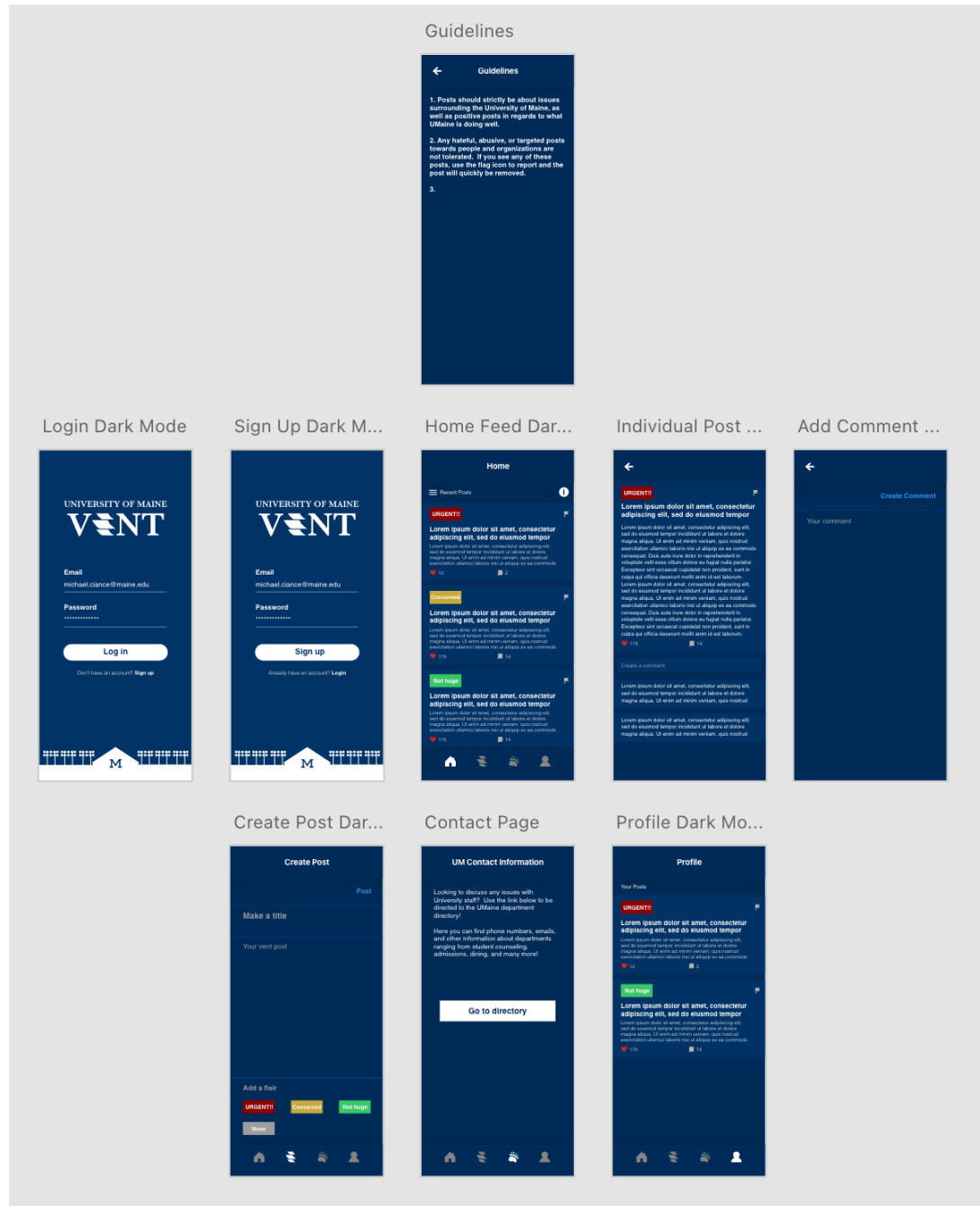


FIGURE 2: UMaine branded prototype



FIGURE 3: Rift logo

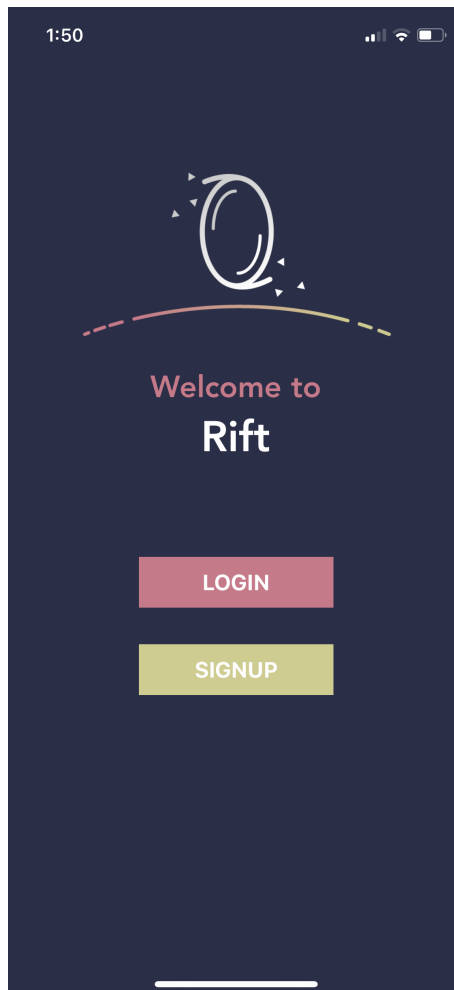


FIGURE 4: Rift landing page

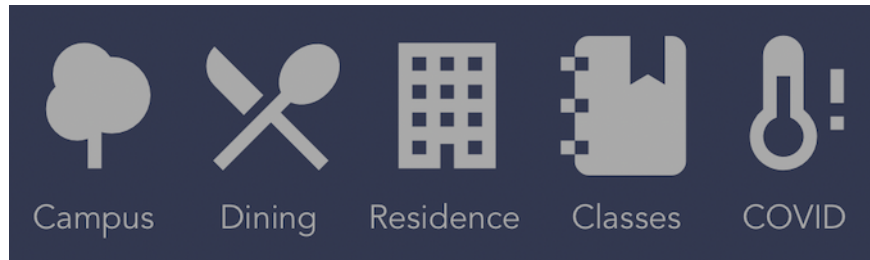


FIGURE 5: React Native Vector Icons package icons as categories

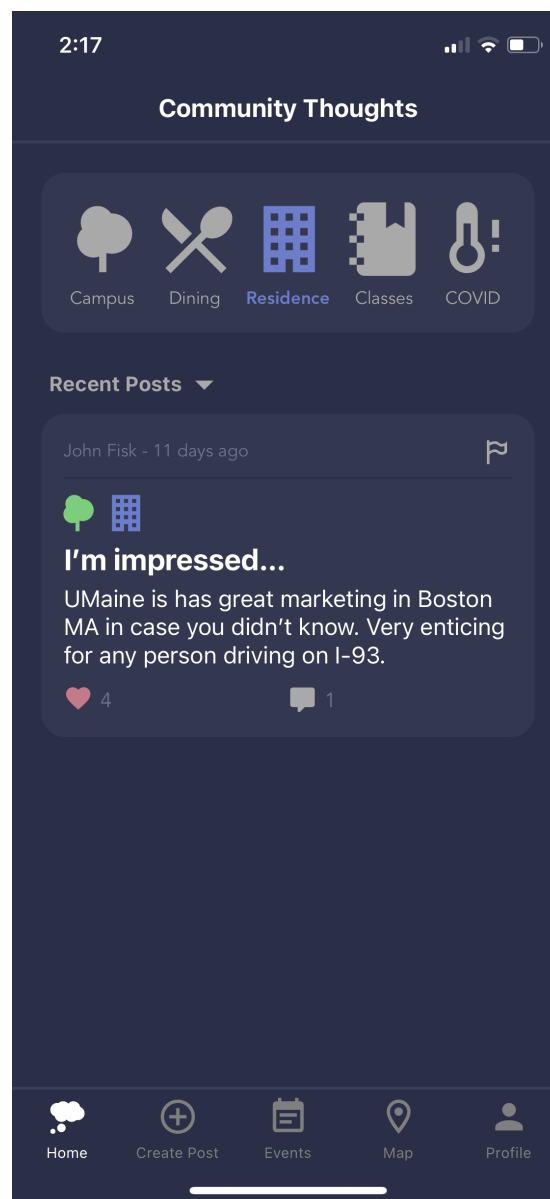


FIGURE 6: Posts feed with card

6:42

Create an Event

Event Name

Description of event

Location

Date Apr 5, 2021

Time 12:00 PM

CREATE A POST

Post Your Thoughts

Make an Event

Close

Home Create Post Events Map Profile

FIGURE 7: Create post/event modal

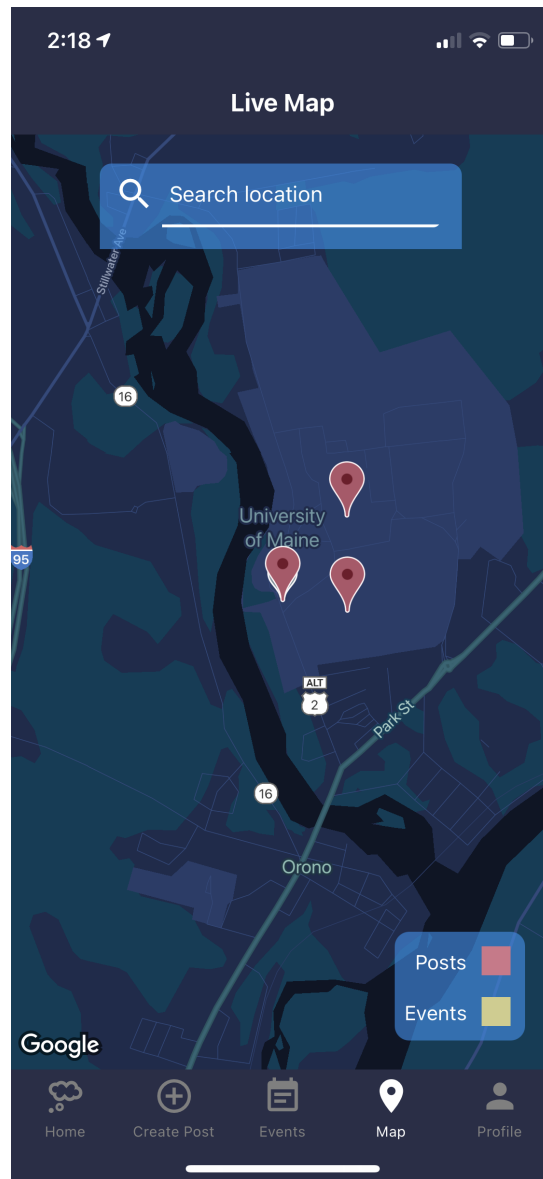


FIGURE 8: Live map of UMaine campus

## APPENDIX B: CODE

```
<MapStack.Screen name="Live Map" component={Maps} options={{
  headerStyle: {
    backgroundColor: '#292F49',
    elevation: 0,
    shadowOpacity: 0,
    borderBottomWidth: 0
  },
  headerTitleStyle: {
    fontWeight: 'bold',
    color: 'white'
  },
  headerLeft: () => (
    <View/>
  ),
}
}/>
```

FIGURE 9: Navigation stack

```
//Gets posts info from database
const [posts, setPosts] = useState([]);
const [category, setCategory] = useState();

React.useEffect(
  () => {
    const unsubscribe = navigation.addListener('focus', () => {
      firebase
        .database()
        .ref("posts")
        .on("value", (snapshot) => {
          setPosts(snapshot.toJSON());
        })
    })
    // Return the function to unsubscribe from the event so it gets removed on unmount
    return unsubscribe;
  }, []);

//Puts posts raw information into readable array
const postsObjects = [];
for (var postId in posts) {
  postsObjects.push(posts[postId]);
}
postsObjects.reverse()
```

FIGURE 10: Retrieving data from database method

```

//Flag Button System
const renderFlagButton = () => {
  if(flagIndex > 0){
    return <MaterialCommunityIcons name="flag-variant" color="#AAAAAA" size={22} style={{paddingBottom: 3, marginBottom: 3}} onPress={unFlagPost}/>
  }else{
    return <MaterialCommunityIcons name="flag-variant-outline" color="#AAAAAA" size={22} style={{paddingBottom: 3, marginBottom: 3}} onPress={flagPost}/>
  }
}

//Flags post adding to database
const flagPost = () => {
  let addFlagsArray = flagsArray.concat(userEmail)
  firebase.database().ref('posts/${props.postKey}').update(
    {
      flags: addFlagsArray,
    }
  )
  Alert.alert('You flagged this post for breaking user guidelines')
}

//Finds userEmail in array and gets its index
var flagIndex = flagsArray.indexOf(toRemove)

//Unflags post
const unFlagPost = () => {
  flagsArray.splice(flagIndex, 1)

  firebase.database().ref('posts/${props.postKey}').update(
    {
      flags: flagsArray,
    }
  )
}

```

FIGURE 11: Flagging post system

```

return(
  <MapView.Marker
    pinColor={props.color}
    coordinate={{ latitude: coordinates[0], longitude: coordinates[1] }}
  >
    <MapView.Callout
      tooltip={true}
      title={true}
      style={{backgroundColor: 'hsla(207, 90%, 54%, 0.6)', padding: 5, borderWidth: 0.5, borderColor: 'lightgrey', borderRadius: 3}}
      onPress={() => props.navigation.navigate('MapsDetailScreen',
        {
          postKey: props.postKey,
          locationMarker: props.locationMarker,
          navigation: props.navigation
        }
      )}
    >
      <Text style={{color: 'white'}}>View Posts</Text>
    </MapView.Callout>
  </MapView.Marker>
)

```

FIGURE 12: Map callout component

## AUTHOR'S BIOGRAPHY

Michael D. Ciance was born in Concord, New Hampshire on August 29<sup>th</sup>, 1999. He grew up in Contoocook, NH and graduated from Hopkinton High School in 2017. Michael will graduate in May of 2021 with a degree in New Media and a Graphic Design minor.

After graduating, Michael desires to pursue a career in UI/UX design and create interactive interfaces. In his free time Michael enjoys the outdoors and exploring trails, playing and watching basketball, and learning about history.